

Next Generation Air/Ground Communications System Program Overview

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AND-360

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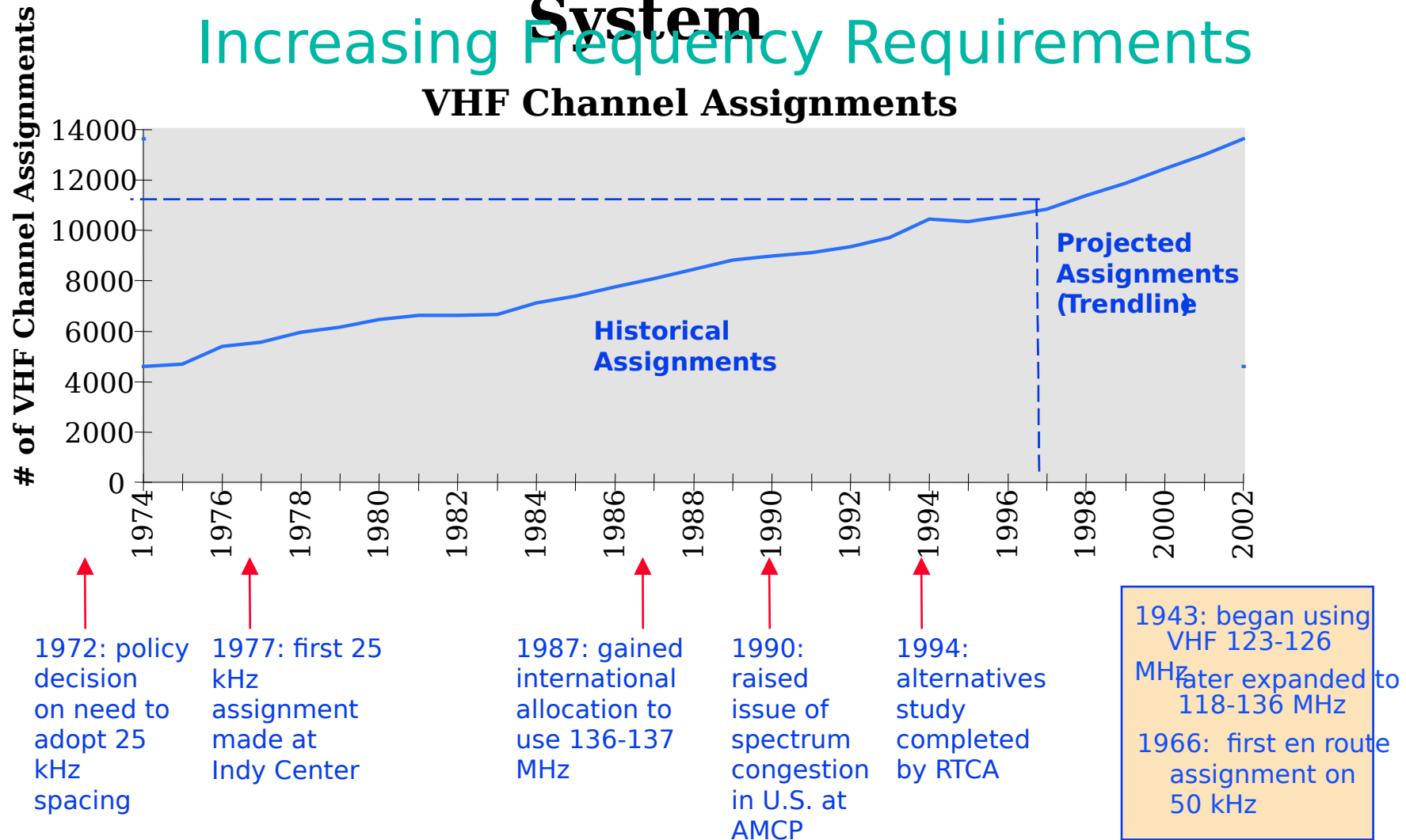
Next Generation Air/Ground Communications System Mission Needs Statement

- **Alleviate the Spectrum Congestion Problem**
- **Reduce Maintenance Costs of Radio Systems**
- **Increase Security/Channel Control**
- **Establish a Communications Path for Data Link**
- **Provide Flexibility for Future Growth**

Next Generation Air/Ground Communications System

Increasing Frequency Requirements

VHF Channel Assignments



Next Generation Air/Ground Communications

System Impacts of Spectrum Shortage

- **Delays**, with large cost potential for carriers, who view NEXCOM as a risk mitigation capital investment.
- **Inability to provide new services**, where large capital investment in NAS Modernization will not yield expected productivity and efficiency gains.
- **Curtailment of existing services**, such as reducing service volumes for non-ATC broadcasts at some major hubs to accommodate resectorization efforts.
- **Growth in high density terminal areas will not be accommodated.**

Next Generation Air/Ground Communications System

Joint Resource Council Decision 2B

➤ Reaffirmed:

⇒ **Mission Need Statement**

⇒ **Move to digital communications- Decision made at 7/24/97 JRC**

➤ Investment Decision:

⇒ **Approved the Preferred Alternative**

⇒ **Concurred with the segmented approach**

⇒ **Approved Segment One Only**

⇒ **Approved the NEXCOM APB for Segment One**

➤ Assigned program to the Communications IPT

➤ Demonstrated User Support for Program

14/17/98 ATIA, NBAA and AOPA in Attendance 5

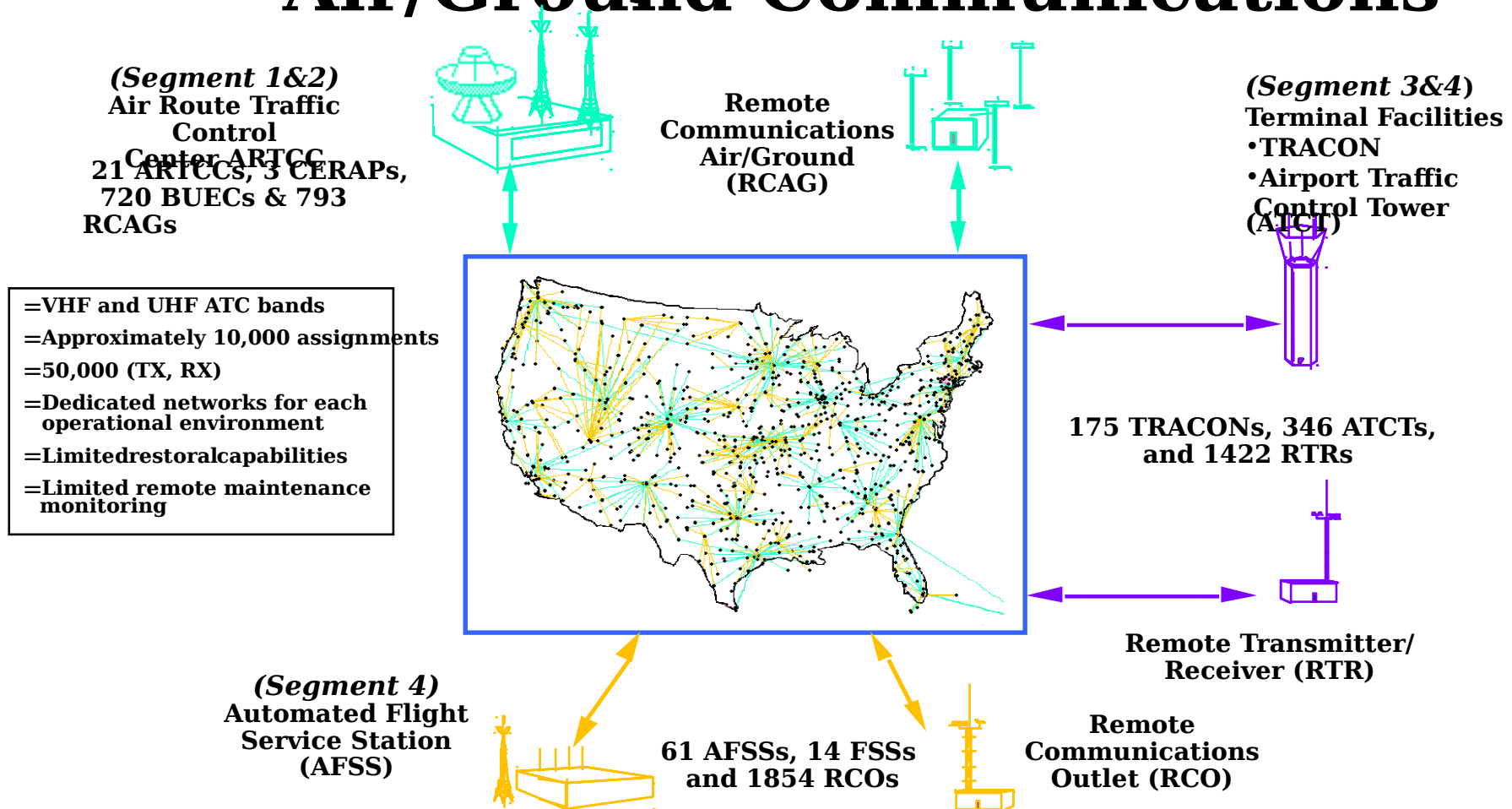
Next Generation Air/Ground Communications

System Requirements Document KEY PARAMETERS

- **Party Line Monitoring**
- **Any Aircraft Can Enter**
- **Air to Air Communication**
- **Ground to Air Broadcast**
- **DSB AM Emergency Frequency**
- **Upgradable to Voice/Data**
- **Radio Reliability - 26,280 MTBF**
- **Availability- .99999**
- **Acceptable Voice Quality**
- **Delay less than 250 msec**
- **Frequency Range 117.975 - 137 MHz, Capable From 112**
- **Meets or Exceeds Current System Coverage**
- **No Limitation on # of Airborne Users (Voice)**
- **Capable of 4 Times as many Useable Channels**
- **Scalable to Meet Requirements for all ATC facilities**
- **Conforms to ICAO SARPS**
- **Backward Compatible with 25kHz DSB-AM**

Next Generation Air/Ground Communications

Air/Ground System Communications

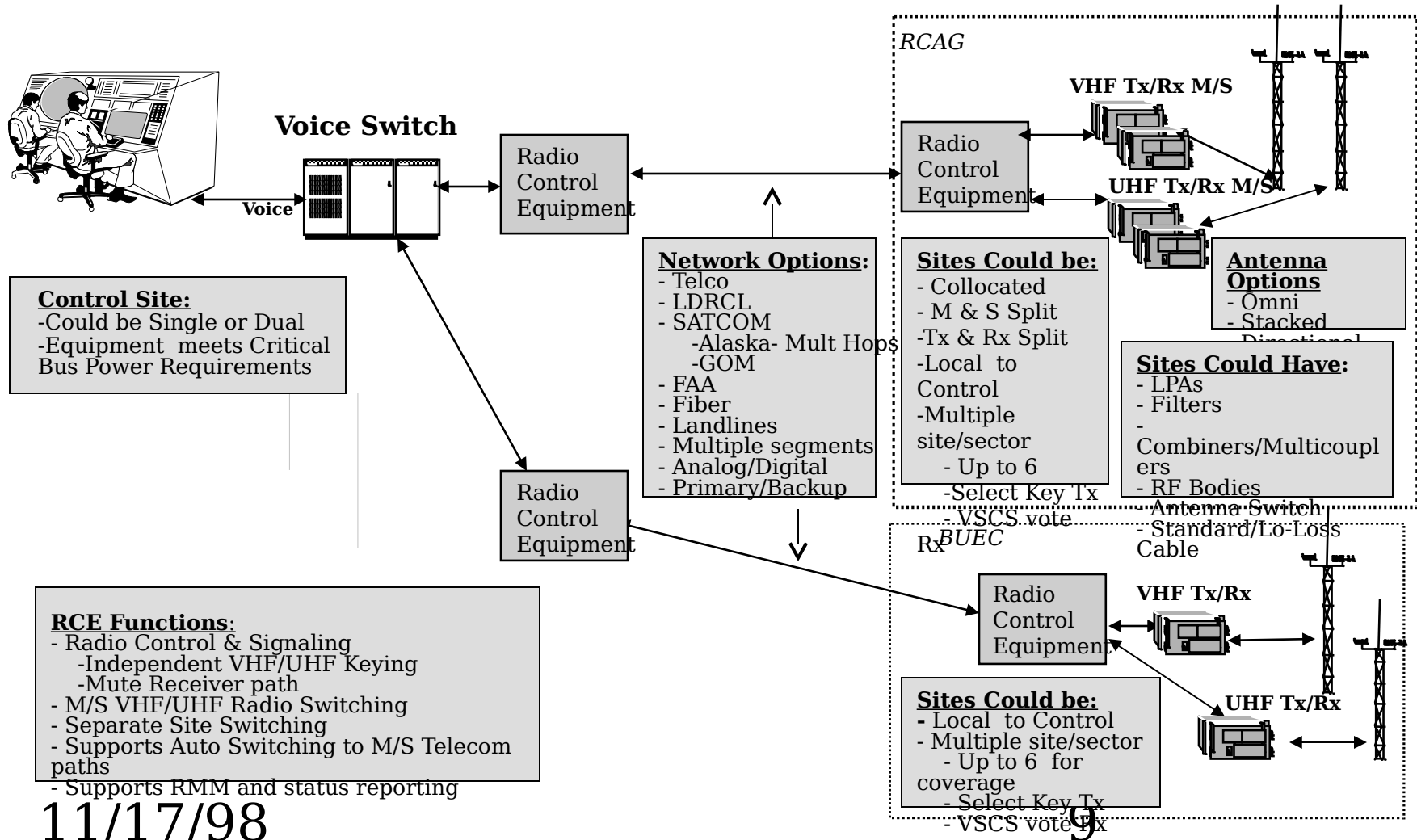


Next Generation Air/Ground Communications System Program Segments

- **Segment 1 (2002-2008)**
 - ⇒ 2002-2007. Deploy multi-mode radios/RIUs at en route facilities: operate in analog mode.
 - ⇒ 2005-2008. Cut over High/Superhigh altitude to digital operation.
- **Segment 2 (2005-2010)**
 - ⇒ Provide Datalink capability to en route sectors on digital voice by deploying GNI and connecting with remote sites.
- **Segment 3 (2010-2015)**
 - ⇒ Implement digital voice and Datalink at High Density Terminal Airspaces (57 TDLS Airports & associated TRACONS).
- **NAS Sustainment - (Underlies all segments)**
 - ⇒ Includes expansion and limited replacement of areas of the NAS not addressed by the Segments with NEXCOM compatible equipment.
 - ⇒ Includes continued support of UHF analog for military purposes.

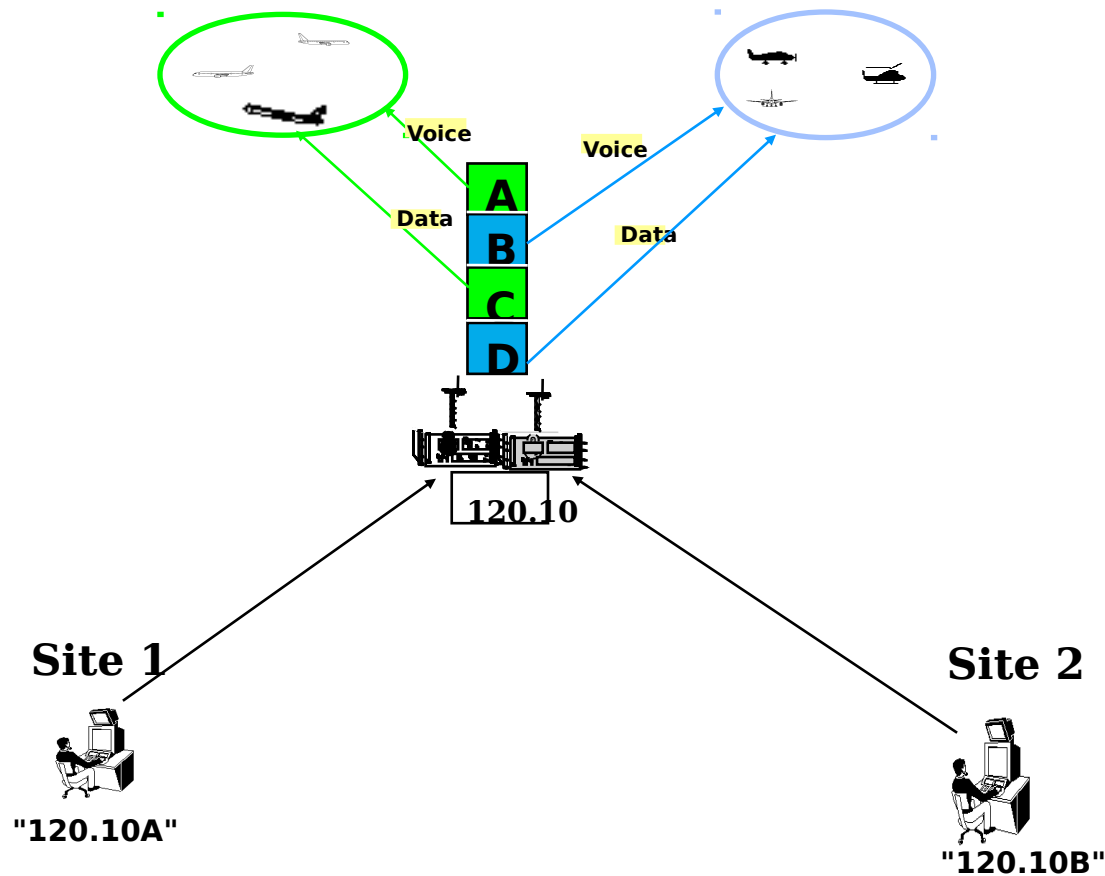
Next Generation Air/Ground Communications

Existing A/G System



Next Generation Air/Ground Communications

System VDL Mode 3 Radio Configuration



2 Voice & 2 Data
(2V2D)

11/17/98

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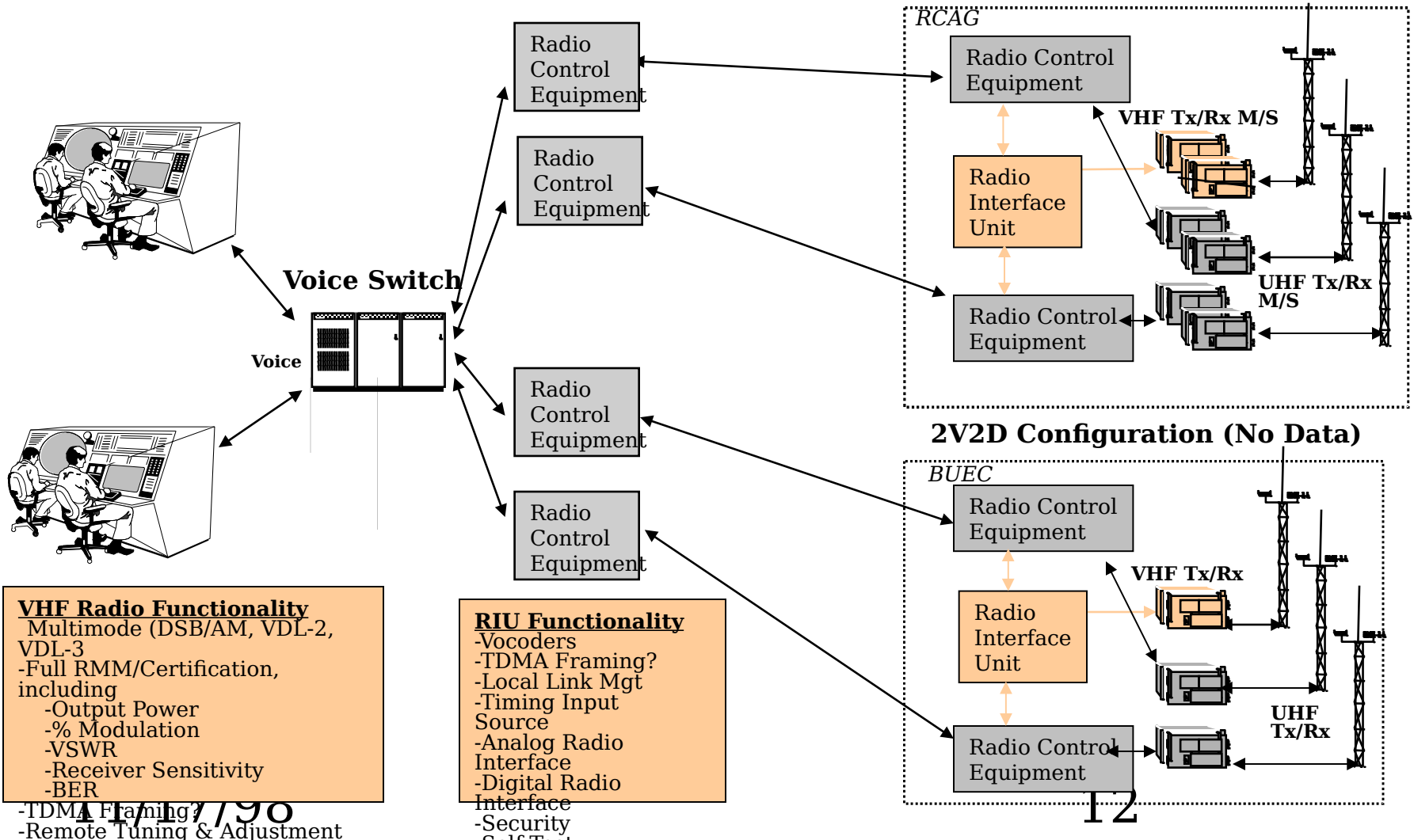
Next Generation Air/Ground Communications System Program Segmentation

➤ Segment 1 (2002-2008): Approved

- ⇒ Deployment of multi-mode radios at High/Superhigh en route facility locations, operating in analog mode.**
 - Analog Voice: IOC CY 2002 and FOC CY 2007 (Deployment of NEXCOM Radios/RIUs)**
 - Digital Voice: IOC CY 2005 and FOC CY 2008 (Transition of NEXCOM Radios from analog operation to digital operation)**
 - The schedule of this transition is dependent on Air Traffic Operations and user equipage.**

Next Generation Air/Ground Communications

NEXCOM Segment One



Next Generation Air/Ground Communications System

Program Segmentation

➤ Segment 2 (2005-2010):

⇒ Deployment of Ground Network Interface (GNI) into ARTCCs already operating digital voice

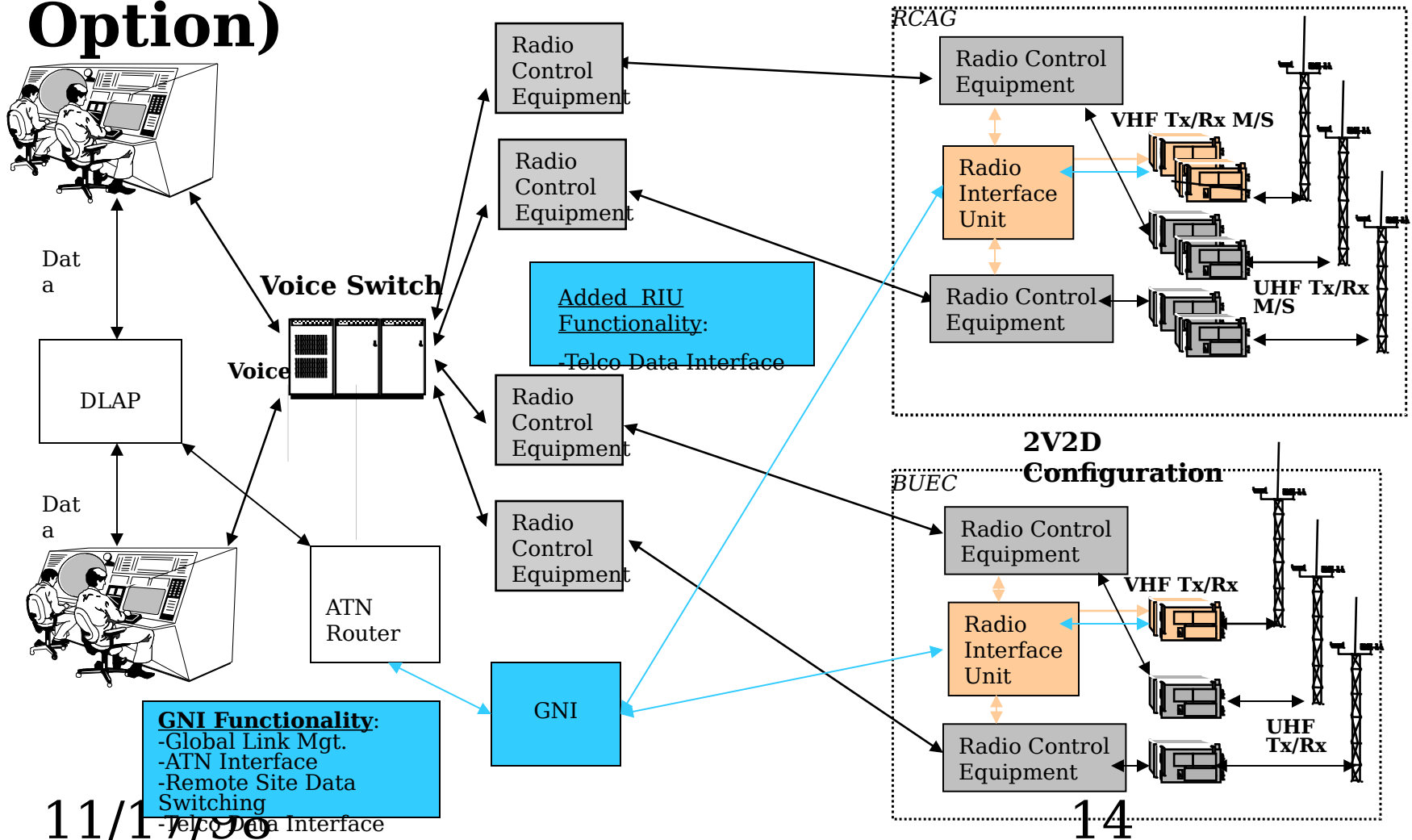
⇒ Integration of data link service into those same facilities.

⇒ Two basic options:

- Limited GNI (Adding data lines to existing voice network)**
- Full GNI (Consolidating data and voice at the ARTCC)**

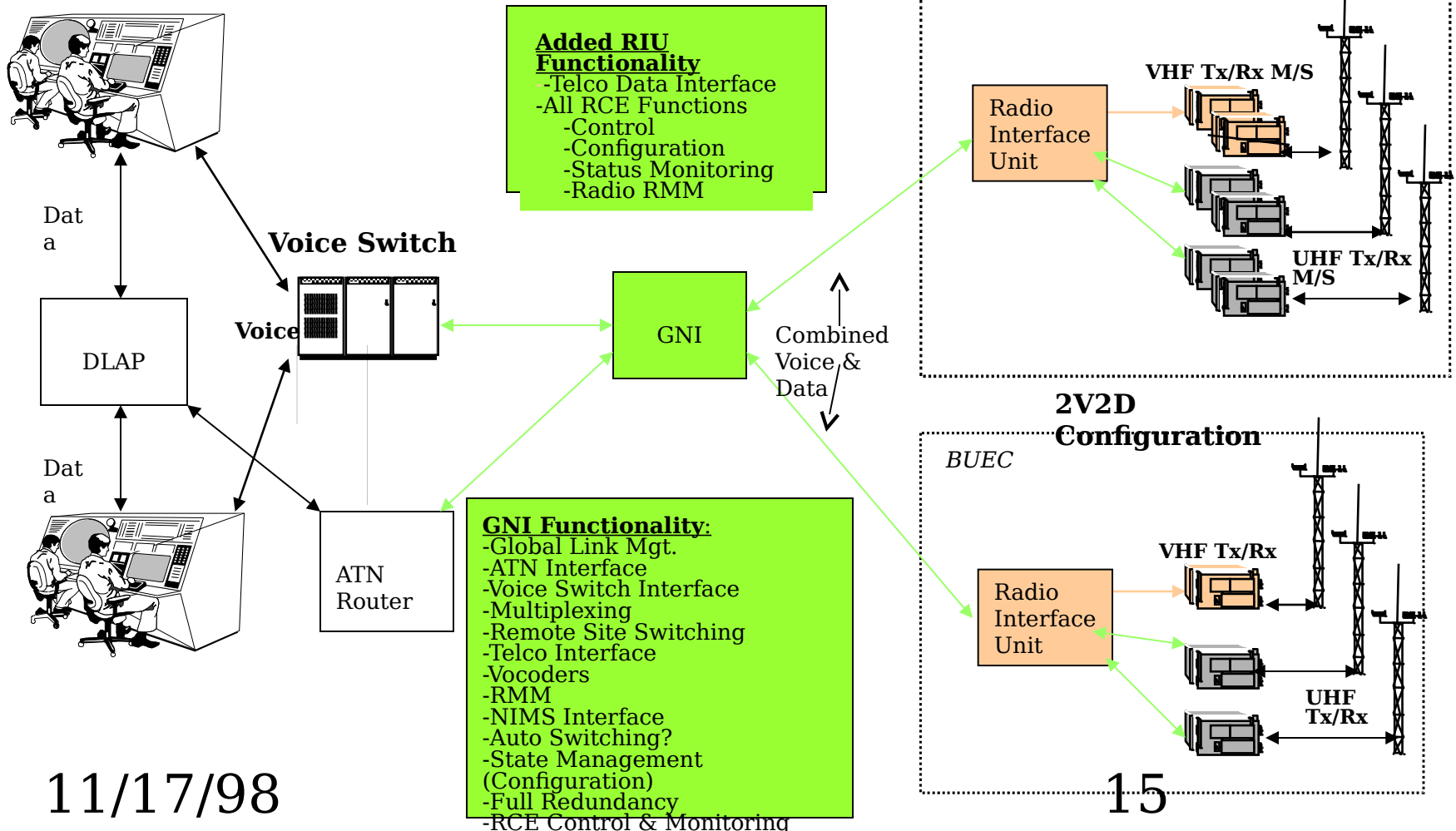
Next Generation Air/Ground Communications

NEXCOM Segment Two (Limited GNI Option)



Next Generation Air/Ground Communications

NEXCOM System Two (Full GNI Option)



Next Generation Air/Ground Communications System Program Segmentation

➤ Segment 3 (2010-2015):

- ⇒ Deployment of NEXCOM radios/RIUs to selected High Density Terminal Airspace and low enroute sectors (57 TDLS Airports & associated TRACONS).**
- ⇒ Transition to integrated voice and data at these locations.**

Next Generation Air/Ground Communications System Program Activities

➤ Industry Day Conducted

⇒ 152 Participants

⇒ 49 Companies

⇒ 15 FAA Offices

⇒ One-on-One Meetings

CSTI Litton Amecom

HarrisLucent Technologies

Motorola Unisys

Park Air Cubic

Raytheon GEC-Marconi Hazeltine

DENRO ITT (10/14)

Next Generation Air/Ground Communications

NEXCOM System Milestones (Segment 1)

JRC Investment Decision/APB Approval	5/98
AMPC\6 - VDL-3 SARPS Recommendation for Adoption	
3/99	
Acquisition Strategy Approved	8/99
Integrated Program Plan Approved	
2/00	
System Specification Approval	4/00
Screening Information Request (SIR) Release	
10/00	
Adoption of VDL-3 SARPS by ICAO (Insertion into Annex 10)	
11/00	
Contract Awards	12/01
In-Service Review (Decision)	2/03
Initial Operational Capability (IOC) Analog Voice	
5/03	
First Commissioning (Analog Voice)	
6/03	
Initial Operational Capability (Digital Voice)	
1/05	
Site Implementation Complete	8/07
11/17/98	
Full Operational Capability (Analog Voice)	10/07

Next Generation Air/Ground Communications System ACQUISITION

- **Pre-Source Selection (Present to 10/00)**
 - ⇒ **Program Planning & Specification Development**
 - ⇒ **Industry (Users & Suppliers Liaison**
 - ⇒ **Testing Activities**
- **Source Selection (10/00 - 12/01)**
 - ⇒ **SIR Release**
 - ⇒ **Operational Capabilities Test**
 - ⇒ **Candidate Evaluation**
 - ⇒ **Contract Award**
- **Post Contract Award (12/01 - 12/06)**
 - ⇒ **OT&E/Shakedown**
 - ⇒ **Production Deliveries**

Next Generation Air/Ground Communications System

PRE-SOURCE SELECTION

- **Complete National/International Standards**
- **Develop Program Plans, Systems and Functional Specifications**
- **Maintain Close Coordination with Vendors & Users**
- **Maintain NEXCOM Web Site With all Current Program Information and Documents**
 - ⇒ **Website address: www.faa.gov/nexcom**